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PATENT  
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Robert LESSARD

Serial No.: 10/802,925

Filed: May 18, 2004

Group Art Unit: Unassigned

Examiner: Unassigned

For: SYSTEM AND METHOD FOR PRINTING A CODE ON AN ELONGATE ARTICLE  
AND THE CODE SO PRINTED

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

CLAIM FOR PRIORITY

Sir:

Under the provisions of Section 119 of 35 U.S.C., Applicant(s) hereby claim the benefit of the filing date of Canadian Patent No. 2,422,499, filed March 18, 2004, for the above identified United States Patent Application.

In support of Applicant(s) claim for priority, filed herewith is one certified copy of the above.

Respectfully submitted,

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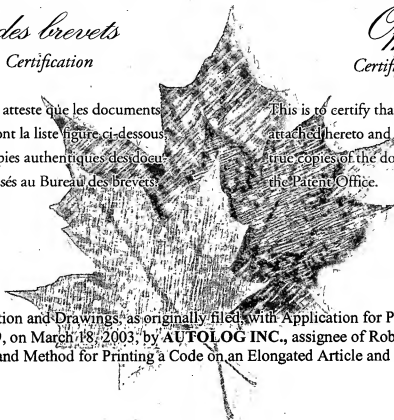
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Specification and Drawings, as originally filed, with Application for Patent Serial No:  
2,422,499, on March 18, 2003, by **AUTOLOG INC.**, assignee of Robert Lessard, for  
"System and Method for Printing a Code on an Elongated Article and the Code so Printed".

  
Agent certificateur / Certifying Officer

March 26, 2004

(CIPO 68)  
04-09-02

Canada

OPIC  CIPO

**SYSTEM AND METHOD FOR PRINTING A CODE ON AN  
ELONGATE ARTICLE AND THE CODE SO PRINTED**

**FIELD OF THE INVENTION**

The present invention relates to a system and method for printing a code on an elongate article, particularly a piece of wood, and the code so printed.

**BACKGROUND OF THE INVENTION**

Recently, there have been developments in the field of wood processing in order to automate the various processes involved therein. More particularly, it has become more prevalent to optimize planers, and to automate wood grading stations.

In this context, and in order to ease processing further down the line, it is known for wood graders to grade a piece of wood, which is then marked with a code indicative of the grade given by the grader. Downstream, machines adapted to read the code and act accordingly are provided.

One of the disadvantages of such systems is that the code so printed on the piece of wood takes up too much space, or is printed with a large quantity of ink. This results in an unsightly mark, which will not come off. Alternative embodiments have used UV ink to print the code, but the UV ink has a tendency to fade to yellow in time, again resulting in unsightliness.

Finally, since the code must be printed on the piece of wood at high speeds, it can result in sloppy marks, which are unreadable by the code reading apparatus.

### SUMMARY OF THE INVENTION

It is an object of the invention to provide a method and apparatus for marking a piece of wood which obviates the disadvantages of the prior art mentioned above.

5 It is also an object of the invention to provide a code which is discreet, and which is redundant, increasing the accuracy of the reading apparatus.

10 In accordance with a preferred embodiment of the invention, this object is achieved with a printing system which includes a printing head having at least two micro valves.

15 In accordance with yet another object of the invention, this object is achieved with a code to be printed on a piece of wood, said code comprising a longitudinal area within which a plurality of lines may or may not be printed. Furthermore, the code is preferably printed at least twice simultaneously, the at least two codes being laterally spaced from each other, to provide redundancy.

### BRIEF DESCRIPTION OF THE FIGURES

20 The present invention will be better understood after reading a description of a preferred embodiment thereof, made in reference to the following drawings in which:

25 Figure 1 is a schematic representation of the printing system according to a preferred embodiment of the invention;

Figure 2 is a photograph of a plurality of wood boards printed with the system of Figure 1; and

Figure 3 is a representation of a code word according to a preferred embodiment of the invention.

## 5     DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

Referring now to Fig. 1, there is shown a schematic representation of the system for printing a code on an elongate article.

10     The system 10 comprises an ink unit 11, a printing head 13 and a controller 15.

The ink unit 11, in a preferred embodiment, includes an ink reservoir 21, preferably of the type "bag-in-box". Other components include a return valve 23, filter 25, pump 27, air eliminator 29, bleeding valve 31 associated with reservoir 33, pressure transducer 35, pressure reservoir 37 and main valve 39, all interconnected in the usual manner.

The printing head 13 includes a filter 41 and at least one, preferably three, valves 43. In a preferred embodiment, the valves 43 are micro-valves, which are adapted to open and close rapidly, spraying droplets of ink. The three valves are also preferably aligned with each other, and laterally spaced apart.

20     A controller 15 controls all of the elements of the ink unit 11, and the printing head 13.

25     The code that is to be printed takes up a predetermined length (footprint) on the piece of wood. The code word is comprised of a plurality of "bits", which may be on (presence of the bit) or off (absence of the bit). In a preferred embodiment, each bit is a longitudinal line, preferably printed with UV ink.

30

The code word according to a preferred embodiment of the invention is comprised of ten bits. However, it will be appreciated that more or less bits may also fulfill the objects of the present invention, according to the needs of the particular user.

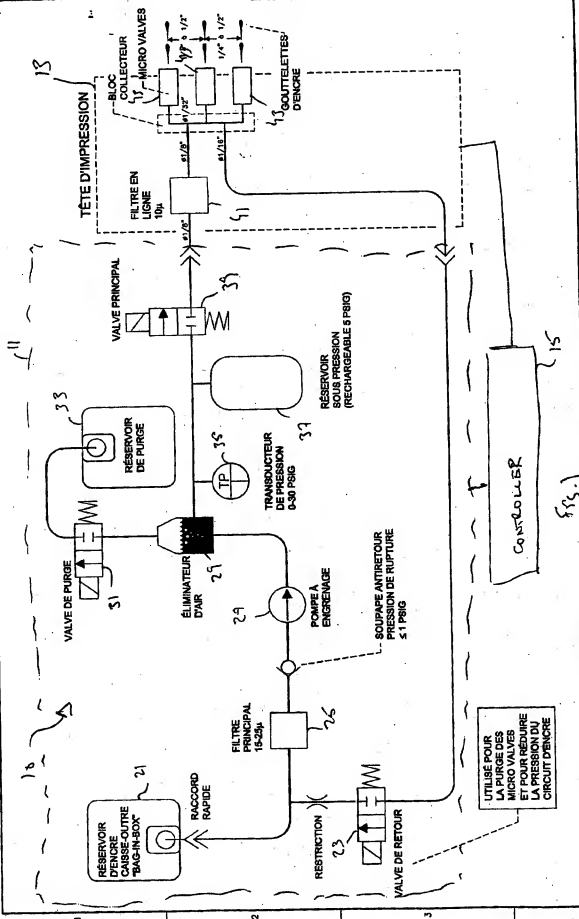
5 In another aspect of the invention, as shown in Fig. 2, the code word is printed at least twice simultaneously, where each code is laterally spaced from the other one. In a more preferred embodiment, the code is printed three times, insuring better redundancy.

10 This results in a small area of wood required to print the wood, and built-in redundancy.

Referring now to Fig. 3, there is shown three code words 51 printed simultaneously on a piece of wood 100. As can be seen, bit 1 is on, bit 2 is off, bit 3 is off, bit 4 is on, etc. If the code word were printed only once, errors could occur due to variations on the texture of the wood, presence of knots, etc. By printing the code at least twice, and preferably three times, the accuracy when reading the code downstream is further increased.

20 The ink used for the apparatus is preferably UV as mentioned previously. Furthermore, advantageous characteristics include fast drying, so that less ink is required and it must be adapted to be readable on wood.

25 Although the present invention has been explained hereinabove by way of a preferred embodiment thereof, it should be pointed out that any modifications to this preferred embodiment within the scope of the appended claims is not deemed to alter or change the nature and scope of the present invention.



## SCHEMA DE FONCTIONNEMENT

## CIRCUIT D'ÉCOULEMENT DE L'ENCRE

## IMPRIMANTE À JET D'ENCRE POUR CODE D'IDENTIFICATION DES PIÈCES DE BOIS



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No. DATE LOG PART DESCRIPTION

REVISION

DESIGNER

DRAWN

CHECKED

APPROVED

DATE

BY

TITLE

PROJECT

DATE

DESIGNER

J. PETIT

DATE

14-05-2003

PROJECT

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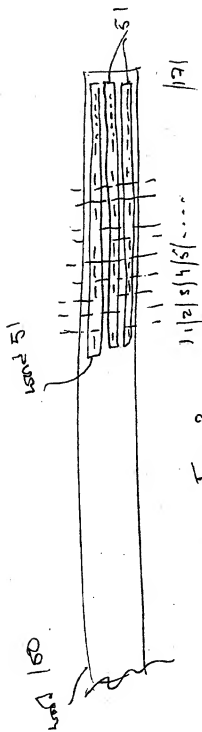
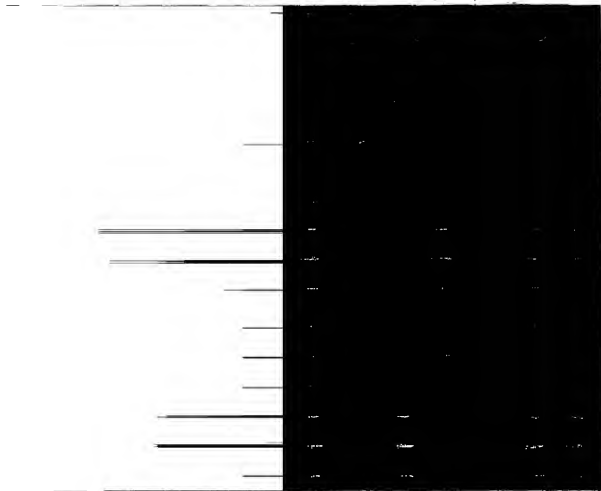


Fig. 3







EXEMPLE  
D'IMPRESSION

Figs. 2

